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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,601	07/07/2003	John R. Grassi	GISZ 2 00031	7816

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EXAMINER

LIN, ING HOUR

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,601

Applicant(s)

GRASSI ET AL.

Examiner

Ing-Hour Lin

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/19/05, 9/14/05, and 11/17/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9, 10, 12-16, 18-23, 25, 26 and 47-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-10, 12-16, 18-23, 25-26 and 47-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 59156566 in view of Kawaguchi et al.

JP '566 (see abstract) substantially teaches the claimed rapid cooling in a lost wax casting method for casting metal and comprises the use of simultaneous molten metal pouring and forming a partially solidified metal casting including a solidified metal shell by using controlled mist-like cooling water spraying on the mold containing molten metal for the purpose of forming a fine grain solidified metal shell and reducing defect for the casting.

JP '566 fails to teach the use of removing mold. However, Kawaguchi et al (col. 9, lines 65+) teach the use of removing mold after a solidified metal shell in the mold is formed and strong enough to contain the rest of molten metal but before the molten metal contained in the shell has been completely solidified for the purpose of reducing casting defects such as thermal cracking and minimizing adhesion between the casting product and the mold surface. It would have been obvious to one having ordinary skill in the art to provide JP '566 the use of removing mold as taught by Kawaguchi et al in order to further improve the quality of casting and reducing defects.

4. Claims 6-7, 9-10, 12-14, 16, 18-21, 23, 25-26 and 47-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 59156566 in view of Kawaguchi et al and further in view of Conroy et al.

JP '566 in view of Kawaguchi et al fails to teach the use of water nozzles with a solvent. However, Conroy et al (col. 4, lines 19+) teach the use of nozzles 20 and flow rate and pressure of fluid including water and surfacatant or solvent for the purpose of removing cores from castings. It would have been obvious to one having ordinary skill in the art to provide JP '566 in view of Kawaguchi et al the use of water nozzles with a solvent the as taught by Conroy et al in order to effectively cool the casting in the molten state and remove it from the casting mold.

5. Claims 15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 59156566 in view of Kawaguchi et al and further in view of Conroy et al and Sahari.

JP '566 in view of Kawaguchi et al and further in view of Conroy et al fails to teach the re-use of binder. Sahari (col. 2, lines 24+) teaches the use of nozzles (water jet, water-steam jet)

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and submerging the mold into water and separating the molding granules from binder for the purpose of cooling and removing casting from the mold and for re-using the binder agent. It would have been obvious to one having ordinary skill in the art to provide JP '566 in view of Kawaguchi et al and further in view of Conroy et al the re-use of binder as taught by Sahari in order to effectively and economically perform casting and molding.

Response to Arguments

Applicant's arguments filed on 8/19/05 and declarations filed on 8/19/05, 9/14/05, 11/17/05 and 1/6/06 have been fully considered and the rebuttal of the art is well taken. Therefore, in this office action the art of JP 59156566 and Kawaguchi et al is cited.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I.H.L.

I.-H. Lin

2-2-06

KEVIN KERNS *Kevin Kerns 2/3/06*
PRIMARY EXAMINER